The paragraph beginning on Page 8, line 1, and ending on Page 8, line 8, is amended as follows:

Another feature of the present invention is that the layout of PCB 100 provides space and is adaptable for using components from a number of suppliers. For example, adequate clearance space is provided on PCB 100 to accommodate the largest modulator driver available, and modulator drivers from other manufacturers will thus also fit in the space. It is important to note that if the opening in heatsink 110 is too large for the corresponding component, heat conductive material may be added around at least a portion of the perimeter of the opening so that heatsink 110 comes into contact with the component.

In The Claims

The following is a clean version of the entire set of pending claims. In accordance with 37 CFR § 1.121(c)(1)(ii), Attachment B provides a marked-up version of the claims containing the newly introduced changes.

1. (Amended) A printed circuit board assembly for high-speed optical format data transmission comprising:

a printed circuit board;

a plurality of optical components mounted to the printed circuit board;

a plurality of electrical components mounted to the printed circuit board; and

a heatsink attached to the printed circuit board wherein the heatsink interfaces with a plurality of the electrical and optical components.

2. The printed circuit board assembly of claim 1, further comprising a tray mounted on the printed circuit board for routing optical fiber.

3. The printed circuit board assembly of claim 1, wherein the printed circuit board includes one or more openings in which one or more of the electrical or optical components are embedded.

4. The printed circuit board assembly of claim 1, wherein the heatsink includes one or more openings in which one or more of the electrical or optical components are embedded.

5. The printed circuit board assembly of claim 4, wherein at least a portion of the perimeter of the openings interfaces with the one or more corresponding electrical or optical components.

6. The printed circuit board assembly of claim 1, further comprising:

additional compliant heat conductive material between the top of one or more electrical or optical components and the heatsink.

7. The printed circuit board assembly of claim 1, wherein material is removed from the bottom of one or more portions of the heatsink to accommodate one or more of the electrical or optical components.

8. The printed circuit board assembly of claim 1, wherein the electrical and optical components for receiving data are positioned on one section of the printed circuit board, and the electrical and optical components for transmitting data are positioned on another section of the printed circuit board.

9. The printed circuit board assembly of claim 1, wherein the electrical and optical components that are sensitive to temperature variation are positioned near the portion of the printed circuit board that receives the greatest amount of cooling.

10. A method for dissipating heat from electrical components and optical components on a printed circuit board, the method comprising:

determining an average height of the electrical components and the optical components with respect to the printed circuit board;

forming openings in the printed circuit board corresponding to at least some of the electrical components and optical components that are significantly higher than the average height;

embedding the at least some of the significantly higher electrical components and optical components in the openings in the printed circuit board; and

attaching a heatsink member to the printed circuit board so that the heatsink member is in contact with at least a portion of each electrical and optical component that requires cooling.

11. The method of claim 10, further comprising mounting a tray on the printed circuit board; and routing optical fiber in the tray.

12. The method of claim 10, further comprising:

adding heat conductive material between the top of one or more electrical or optical components and the heatsink.

13. The method of claim 10, further comprising:

removing material from the bottom of one or more portions of the heatsink to accommodate one or more of the electrical or optical components.

14. The method of claim 10, further comprising: positioning the electrical and optical components for receiving data on one section of the printed circuit board; and positioning the electrical and optical components for transmitting data on another section of the printed circuit board.

15. The method of claim 10, further comprising: positioning the electrical and optical components that are sensitive to temperature variation near the portion of the printed circuit board that receives the greatest amount of cooling.

16. (Amended) A method for dissipating heat from electrical components and optical components on a printed circuit board, the method comprising:

determining an average height of the electrical components and the optical components with respect to the printed circuit board;

forming openings in a heatsink corresponding to at least some of the electrical components and optical components that are significantly higher than the average height;

positioning the heatsink over the significantly higher electrical components and optical components on the printed circuit board; and

attaching a heatsink member to the printed circuit board so that the heatsink member is in contact with at least a portion of each electrical and optical component that requires cooling.

17. The method of claim 16, further comprising mounting a tray on the printed circuit board; and routing optical fiber in the tray.

18. The method of claim 16, further comprising:
adding compliant heat conductive material between the top of one or more electrical or optical components and the heatsink.

19. The method of claim 16, further comprising:
removing material from the bottom of one or more portions of the heatsink to accommodate one or more of the electrical or optical components.

20. The method of claim 16, further comprising: positioning the electrical and optical components for receiving data on one section of the printed circuit board; and positioning the electrical and optical components for transmitting data on another section of the printed circuit board.

21. The method of claim 16, further comprising: positioning the electrical and optical components that are sensitive to temperature variation near the portion of the printed circuit board that receives the greatest amount of cooling.

22. (Amended) A device for high-speed optical format data transmission comprising:
circuit board means for mounting electrical components, optical components, and a heatsink device;
a plurality of optical components mounted to the circuit board means;
a plurality of electrical components mounted to the circuit board means; and
heatsink means attached to the circuit board means for dissipating heat from a plurality of the electrical and optical components.

23. The device of claim 22, further comprising means for routing optical fiber.

24. The device of claim 22, wherein the circuit board means includes one or more openings in which one or more of the electrical or optical components are embedded.

25. The device of claim 22, wherein the heatsink means includes one or more openings in which one or more of the electrical or optical components are positioned.

26. The device of claim 25, wherein at least a portion of the perimeter of the openings interfaces with the one or more corresponding electrical or optical components.

27. The device of claim 22, further comprising:

additional compliant heat conductive material between the top of one or more electrical or optical components and the heatsink means.

28. The device of claim 22, wherein material is removed from the bottom of one or more portions of the heatsink means to accommodate one or more of the electrical or optical components.

29. The device of claim 22, wherein the electrical and optical components for receiving data are positioned on one section of the circuit board means, and the electrical and optical components for transmitting data are positioned on another section of the circuit board means.

30. The device of claim 22, wherein the electrical and optical components that are sensitive to temperature variation are positioned near the portion of the circuit board means that receives the greatest amount of cooling.

31. (New) An apparatus comprising:

a printed circuit board;

an optical component mounted to the printed circuit board, wherein the optical component is operable to receive a digital data signal;

an electrical component mounted to the printed circuit board, wherein the optical component is operable to receive the digital data signal; and

a heatsink attached to the printed circuit board wherein the heatsink interfaces with the electrical component and the optical component.